CERTIFIED MAIL

July 6, 2011

Padmavati G. Bending
Associate Regional Counsel
U.S. EPA, Office of Regional Counsel (C-14J)
77 West Jackson Blvd.
Chicago, IL 60604

Aventine Renewable Energy, Inc.
1300 South 2nd Street
Pekin, Illinois 61555-0010
309/347-9200
309/347-3800 fax
www.aventinerei.com

Re: Response to spill reporting and RMP questions

Ms. Bending,

Aventine Renewable Energy, Inc. ("Aventine") respectfully submits the following responses to the questions that the Agency asked regarding emergency response and risk management planning.

Item 1. Provide calculations for the Relief system and the design basis for the pressure relief valves in the storage tank.

Response: *Fagen, Inc initially designed and engineered the dry mill ethanol plant, including the anhydrous ammonia system, and the relief system. The calculations for the relief system on the anhydrous ammonia tank are located in Attachment 1.*

Item 2. Address the stationary source siting and human factors in the process hazard analysis.

Response: *As noted in Item 1, the facility was designed by Fagen, Inc. The plant layout, including the anhydrous ammonia tank, was determined by Fagen, Inc's engineering group. An Illinois Department of Agriculture inspector was on site to review the ammonia system and discovered that the tank was going to be located less than 200 feet from the west fence line violating Section 215.30 c) of the State of Illinois Department of Agriculture rules and regulations. The rule requires containers at newly approved sites must keep a minimum distance of 200 feet from the property line. In order to comply with the rule Fagen, Inc. relocated the tank to the east side of the mash building. This location was selected based on the fact that it would comply with the property line requirement, require minimal engineering/design changes from the original plan and would be protective of the workers downwind. See the documentation in Attachment 2 which contains; 1) a series of emails discussing the siting of the tank. Specifically, a Fagen engineer noting the new location would be downwind of the mash building – the primary location for the plant employees - and; 2) the approval documentation from the Illinois Dept. of Agriculture inspector once the tank was installed in the new location.*

Item 3. Provide the procedures in place for ordering the anhydrous ammonia (i.e., tank level).

Response: *Based on a discussion with Aventine's purchasing agent, the level of the ammonia tank is tracked on a daily chemical inventory report which is checked by the purchasing agent every weekday. When the level of the ammonia tank reaches 20 percent or less, the purchasing agent contacts the ammonia*

supplier for a delivery. A tanker truck with a full load will increase the level in the ammonia tank from 20 percent to approximately 55 to 60 percent. Initially, there was not a written procedure for this (insuring that the other purchasing agent(s) would know the proper protocol), however one has been generated. See Attachment 3

Item 4. Provide startup operating procedures that the operators follow after a turnaround or an emergency shutdown.

Response: *See Attachment 4*

Item 5. Provide Annual certification of the operating procedures

Response: *All standard operating procedures for processes in the risk management program require operator re-training every three years. Aventine creates a new standard operating procedure when a process change requires different procedures to be implemented and trains the operators on the new procedures.*

Item 6. Aventine needs to make the following changes to its Emergency Response Plan: Modify the plan to state that a written follow-up report is due to the LEPC and SERC within 30 days after a release; and modify the plan to state that the LEPC must be called at the same time as the SERC.

Response: *Aventine made changes to its Chemical Safety Contingency Plan to include the required follow up. Notations were made in two locations.*

Section 4.8 Procedure for Notification of Local, State, and Federal Agencies

Local emergency response agencies (Pekin Police, Pekin Fire Department, etc.) will be notified of a release in accordance with the procedures outlined in the previous sections. Notification may also be required to the National Response Center (NRC), the State Emergency Response Commission (SERC, which is IEMA in Illinois), and any Local Emergency Planning Committees (LEPCs) in areas likely to be affected by the release. These notification procedures are outlined below. If notification is required to the NRC, notification must also be made to both the SERC and LEPC, with a written follow-up report within 30 days of the incident.

Section 4.10 Written Follow-Up Report

In the event that the State and LEPC are notified of a release or spill; a written follow-up report to both parties should be submitted within 30 days of the release.

Item 7. Provide a Copy of the Compliance Audit that Aventine was supposed to have conducted in November 2009.

Response: *Avenfine was working with Malcolm Pirnie, an environmental consulfant, on an environmental tracking, monitoring and calendaring software program prior to filing for bankruptcy in 2009. During the period of the bankruptcy fhe compliance audit was missed. After emerging from bankruptcy, Aventine continued with development of the software program with Malcolm Pimie and has successfully installed the first phase. The second phase will include programs such as the Risk Management Plan. Additionally, in May of this year, Aventine engaged Natural Resource Group ("NRG"), a second environmental consulting firm, to perform a full audit and revamp of the Risk Management Plan. NRG has begun the first phase of their review by looking over the current RMP. The updated RMP will be complete by the end of the 3rd quarter 2011. We can provide copies of fheir work as they progress, or we can submit the final Plan when completed.*

Item 8. *Provide a copy of the most recent process hazard analysis.*

Response: *See Attachment* **5**

Very Truly Yours,

Steve Antonacci
Environmental Manager
Aventine Renewable Energy, Inc.

ATTACHMENT 1

Relief System Design Basis for Ammonia PSVs

Storage Tank

The Ammonia Tank is a cylindrical tank 9-foot diameter by 32-foot seam to seam with hemispherical heads. The total surface area is 1,286 square feet. From the chart in Appendix B of the Compressed Gas Association CGA G-2.1 (American National Standard Safety Requirements for the Storage and Handling of Anhydrous Ammonia, Fifth Edition, 1999) the pressure relief valve requirement is 7,910 CFM.

Two Squibb-Taylor A4146A relief valve manifolds are specified. Each manifold comes with two A1310A relief valves each of which are capable of a relief rate of 5,363 CFM per ASME code. At any given time there are two relief valves in service, so the total relief capacity is 10,726 CFM, which is more than adequate to meet the requirements. Per Squibb-Taylor recommendations, the relief valves should be replaced 5 years after date of manufacture.

Piping

CGA G-2.1 requires a hydrostatic relief valve to be installed in each section of piping in which liquid ammonia can be isolated between shut-off valves to relieve the pressure that could develop from trapped liquid. To meet this requirement, Squibb-Taylor A1325 hydrostatic relief valves are specified in piping sections where liquid ammonia could become isolated between shut-off valves. The standard does not require calculation of volumetric flow requirements, and Squibb-Taylor does not specify flow capacity for A1325 hydrostatic relief valves. The valves are ¼-inch MNPT set at 350 PSI. Per Squibb-Taylor recommendations, the relief valves should be replaced 5 years after date of manufacture.

Appendix B

Minimum required flow rate of pressure relief devices for fire protection

Pressure relief valves for excessive heat or fire protection used on containers covered by Sections 6, 11, and 12 shall be constructed to discharge at not less than the rates required in Appendix B before the pressure is in excess of 121% of the maximum allowable working pressure of the container. Relief protection for any other reason shall use ASME UG-125 through UG-136 [10].

Surface Area, Sq. Ft.	Flow Rate CFM Air	Surface Area, Sq. Meters	Flow Rate CMM Air	Surface Area, Sq. Ft.	Flow Rate CFM Air	Surface Area, Sq. Meters	Flow Rate CMM Air	Surface Area, Sq. Ft.	Flow Rate CFM Air	Surface Area, Sq. Meters	Flow Rate CMM Air	Surface Area, Sq. Ft.	Flow Rate CFM Air	Surface Area, Sq. Meters	Flow Rate CMM Air
20	258	1.9	7.3	145	1 310	13.5	37.1	340	2 640	31.6	74.6	1 350	8 160	125.4	231.0
25	310	2.3	8.8	150	1 350	13.9	38.1	350	2 700	32.5	76.3	1 400	8 410	130.1	237.9
30	360	2.8	10.2	155	1 390	14.4	39.2	360	2 760	33.5	78.1	1 450	8 650	134.7	244.9
35	408	3.3	11.6	160	1 420	14.9	40.2	370	2 830	34.4	79.9	1 500	8 900	139.4	251.8
40	455	3.7	12.9	165	1 460	15.3	41.2	380	2 890	35.3	81.7	1 550	9 140	144.0	258.7
45	501	4.2	14.2	170	1 500	15.8	42.2	390	2 950	36.2	83.4	1 600	9 380	148.6	265.5
50	547	4.7	15.5	175	1 530	16.3	43.2	400	3 010	37.2	85.2	1 650	9 620	153.3	272.3
55	591	5.1	16.7	180	1 570	16.7	44.3	450	3 320	41.8	93.8	1 700	9 860	157.9	279.0
60	635	5.6	18.0	185	1 600	17.2	45.3	500	3 620	46.5	102.3	1 750	10 090	162.6	285.7
65	678	6.0	19.2	190	1 640	17.7	46.3	550	3 910	51.1	110.6	1 800	10 330	167.2	292.4
70	720	6.5	20.4	195	1 670	18.1	47.3	600	4 200	55.7	118.8	1 850	10 560	171.9	299.0
75	762	7.0	21.6	200	1 710	18.6	48.3	650	4 480	60.4	126.8	1 900	10 800	176.5	305.6
80	804	7.4	22.8	210	1 780	19.5	50.2	700	4 760	65.0	134.8	1 950	11 030	181.2	312.2
85	845	7.9	23.9	220	1 850	20.4	52.2	750	5 040	69.7	142.6	2 000	11 260	185.8	318.8
90	885	8.4	25.1	230	1 920	21.4	54.1	800	5 300	74.3	150.4	2 050	11 490	190.5	325.3
95	925	8.8	26.2	240	1 980	22.3	56.0	850	5 590	79.0	158.0	2 100	11 720	195.1	331.8
100	965	9.3	27.3	250	2 050	23.2	57.9	900	5 850	83.6	165.6	2 150	11 950	199.7	338.3
105	1 010	9.8	28.5	260	2 120	24.2	59.8	950	6 120	88.3	173.1	2 200	12 180	204.4	344.7
110	1 050	10.2	29.6	270	2 180	25.1	61.7	1 000	6 380	92.9	180.6	2 250	12 400	209.0	351.1
115	1 090	10.7	30.7	280	2 250	26.0	63.6	1 050	6 640	97.6	187.9	2 300	12 630	213.7	357.5
120	1 120	11.2	31.7	290	2 320	26.9	65.4	1 100	6 900	102.2	195.2	2 350	12 850	218.3	363.8
125	1 160	11.6	32.8	300	2 380	27.9	67.3	1 150	7 160	106.8	202.5	2 400	13 080	223.0	370.2
130	1 200	12.1	33.9	310	2 450	28.8	69.1	1 200	7 410	111.5	209.7	2 450	13 300	227.6	376.5
135	1 240	12.5	35.0	320	2 510	29.7	70.9	1 250	7 660	116.1	216.8	2 500	13 520	232.3	382.8
140	1 280	13.0	36.0	330	2 570	30.7	72.8	1 300	7 910	120.8	223.9	2 550	13 739	236.9	389.0

Surface Area = Total Outside Surface Area of Container in Square Feet. When the Surface Area is not stamped on the name plate or when the marking is not legible, the area can be calculated by using one of the following formulas:

(1) Cylindrical container with hemispherical heads

Area = overall length in feet times outside diameter in feet times 3.1416.

(2) Cylindrical container with other than hemispherical heads

Area = (overall length in feet plus 0.3 outside diameter in feet) times outside diameter in feet times 3.1416.

(3) Spherical container

Area = outside diameter in feet squared times 3.1416.

Flow Rate—CFM Air—cubic feet per minute of air required at standard conditions: 60 °F (15.6 °C) and atmospheric pressure (14.7 psia (101.3 kPa).

The rate of discharge may be interpolated for intermediate values of surface area. For containers with total outside surface area greater than 2 500 sq. ft., the required flow rate can be calculated using the formula,

Flow Rate CFM Air = $22.11\ A^{0.82}$ where A = outside surface area of the container in square feet.

Conversion Factors:

$ft^2 \times 0.092\ 903 = m^2$

$CFM \times 0.028\ 317 = m^3/min$

$ft \times 0.3048 = m$

[1] NOTE: References in this document are shown by bracketed numerals and are listed in the order of appearance. See Section 13, References.

A1416A

Relief Valve Manifold

The A1416 relief valve manifold is used on large NH3 tanks to allow removal of a relief valve for inspection or replacement without the need of evacuating the tank. Adequate relief protection is provided by the remaining relief valve in the manifold. Bleeder valves relieve vapor pressure under each relief valve after closing the manifold port, and each port can be closed separately, meeting code requirements. Soft seats allow bubble tight closure of each port.

Tank Connection	Start-To-Discharge-Setting	Item Number	Part Number	Includes
	--------	A1416	110835	Manifold
2" FNPT*	250 PSIG	A1416A	110855	Manifold & 2 A1310A
	265PSIG	A1416B	110856	Manifold & 2 A1310B

* Furnished with 2' x 2" MNPT nipple

A1590P

Liquid Filling & Vapor Return Valve

The A1590 consists of a service valve, a filling connection, and an excess flow valve. Vapor closing flow (NH3) of excess flow valve is 19,000 cfh at 100 psig inlet.
See instruction manual and bulletin 7.96 for proper valve operation

Filling Rate

Service	Differential Pressure, PSIG					
	5	10	20	30	40	50
NH3	46 gpm	62 gpm	85 gpm	98 gpm	114 gpm	119 gpm
LPG	39 gpm	56 gpm	76 gpm	90 gpm	104 gpm	114 gpm

A1598P

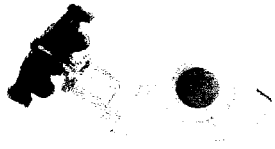
Liquid Withdrawal Valves

The A1596, A1597, and A1598 valves consist of a service valve and an excess flow valve. **See instruction manual and bulletin 7.96 for proper valve operation**

Built in Tri-Gard internal relief valve (A1596 & A1597) bleeds product back to the tank when hose pressure exceeds tank pressure by 50 psig. In this way hose life is extended, chance of hose rupture is reduced, and personnel are protected. The A1598 has a 1/4" FNPT plugged side outlet connection that can be used to install a hydrostatic relief valve.

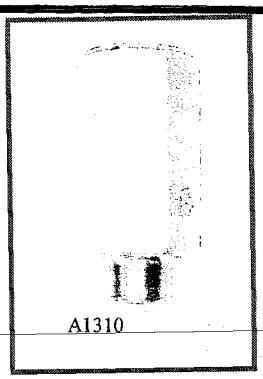
Liquid Withdrawal Rates

Valve	Service	Withdrawal Rate	Differential Closing Pressure
A1596R	NH3	30 gpm	13 psig
	LPG	35 gpm	13 psig
A1597R & A1598P	NH3	50 gpm	13 psig
	LPG	55 gpm	13 psig

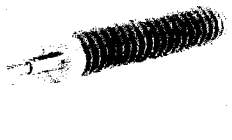


A1597R

A1301



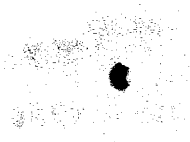
A1310



H5112

H722 or H732

A1325



A2032

Ordering Information

Opening when pressure rises above a predetermined set point, relief valves are designed to protect tanks, piping, or hose from excessive pressure caused by overfilling or fire.

A1325 & A1326
Provides hydrostatic relief for piping or hose and on shutoff valve applications where liquid can become trapped. The relief valve should be replaced 5 years after date of manufacture.

A1301 & A1310
Used on applicator, storage, and nurse tanks. Valves should be replaced 5 years after date of manufacture.

H722 & H732
Intended primarily for delivery and transport trucks hauling NH3 or LP-gas, these relief valves are of all stainless steel construction for maximum resistance to rust and corrosion.

H5112
Internal spring relief valve for stationary or mobile ASME tanks. Mobile applications require a recessed coupling for protection against damage.

Relief Valve Adaptor
Allows for relief protection where liquid can be trapped.

Inlet MNPT	Outlet FNPT	Side Outlet FNPT	Item Number	Part Number
1"	1"	1/4"	A2031	110825
1 1/4"	1 1/4"	1/4"	A2032	110830

Primary Application	Size MNPT	Start-To-Discharge-Setting	Item Number	Part Number	Flow Capacity - CFM Air		For Tanks with Surface Area Up To: Sq. Ft.	Rain Cap	Pipeaway Adaptor
					U. L.	ASME			
Piping, Hose (NH3)	1/4"	350 PSI	A1325	110815	--------	--------	--------	1325-8	--------
		450 PSI	A1326	110816	--------	--------	--------		--------
Storage & Nurse Tanks (NH3)	3/4"	250 PSI	A1301A	110750	1975	1884	239 (NH3)	1301-12 *	--------
		265 PSI	A1301B	110755	2050	1937	250 (NH3)		--------
	1 1/4"	250 PSI	A1310A	110795	5759	5363	882 (NH3)	1310-12	1310-20 (2" FNPT)
		265 PSI	A1310B	110800	5930	5924	914 (NH3)		
Delivery & Transport Trucks (NH3 & LP-gas)	2"	250 PSI	H722-250	121050	3705	3335	175 (LPG)	P297	--------
		265 PSI	H722-265	121052	3984	3586	563 (NH3)		--------
	3"	250 PSI	H732-250	121054	9573	8616	557 (LPG)	P298	--------
		265 PSI	H732-265	121055	10,311	9280	1798 (NH3)		--------
Bulk Storage (NH3 & LP-gas)	2"	250 PSI	H5112-250	121063	11,403	--------	689 (LPG)	--------	P104-24 (3" FNPT)
		265 PSI	H5112-265	121060	12,046	--------	2170 (NH3)	--------	

* P145 rubber protective cap with strap is available as a replacement

ATTACHEMENT 2

Cantrell, Brad

From: Antonacci, Steve
Sent: Friday, September 22, 2006 6:19 PM
To: 'kcirrencione@fageninc.com'
Cc: Toro, Alejandro; Cantrell, Brad; McElroy, Patrick
Subject: RE: USDA Rejection - Aventine Anhydrous Ammonia Storage Tank

Ken,

Please have Tyler check the age of the ANSI standard. Brad Cantrell discovered today that the USDA rule on 200 feet came out in 2003. The next question would be who supercedes who, which may be a fight we do not want to get into.

Please have Brad Cantrell included in the emails since he and Alex have taken the lead on this issue.

Thanks,

Steve

-----Original Message-----
From: kcirrencione@fageninc.com [mailto:kcirrencione@fageninc.com]
Sent: Friday, September 22, 2006 6:09 PM
To: McElroy, Patrick; Antonacci, Steve
Cc: Toro, Alejandro
Subject: Fw: USDA Rejection - Aventine Anhydrous Ammonia Storage Tank

Update from engineering and recommendations on the ammonia tank.

Ken Cirrencione
Project Manager
Fagen, Inc.
Cell 320-260-4622
Office 309-822-8454

----- Forwarded by Ken Cirrencione/Fagen on 09/22/2006 05:52 PM -----

Tyler Albertson/Eng/Fagen

09/22/2006 05:39 AM

To Ken Cirrencione/Fagen@Fagen
cc Alan Garrett/Fagen@Fagen, Jeffrey Holcomb/Eng/Fagen@Fagen, John Austgen/Eng/Fagen@Fagen, Scott Edwards/Fagen@Fagen, AREP01/Fagen@Fagen, Hay/Eng/Fagen@Fagen, Travis Finch/Eng/Fagen@Fagen
Subject Re: USDA Rejection - Aventine Anhydrous Ammonia Storage Tank Link

I do not recommend the use of (2) nurse tanks for continuous plant operation. With ethanol plant consumption at 140 lb/hr, (1) nurse tank will last approximately 2.5 days. This will result in frequent filling or nurse tank replacement. Frequent filling or transporting of anhydrous ammonia could increase the potential for accidents. I also assume the USDA would not want the nurse tanks hard piped since this would result in a permanent installation? A hose connection would increase the potential for failure and could result in an accident. The ammonia pump would likely change because the size of the tanks will effect the available NPSH.

The location of the ammonia tank was originally researched in the ANSI standards:

ANSI K61.1 Section 5.3.4 In the absence of specifications of minimum distance by local jurisdictions, separation distance for ammonia storage containers and placements of containers covered by Sections 9, 10, 11, and 12 after

January 1, 2002 shall be in accordance with table 3. Existing facilities shall make efforts to conform to table 3 with consideration of cost, physical and leag constraints, etc.

Per Table 3 for minimum distance from each container to highway or line of adjoining property which may be built upon for nominal capacity containers over 2,000 to 30,000 gals the required distance is **50 ft.**

If we must move the bulk tank, I suggest near the west side of the sulfuric acid tank. This would allow road access for filling and short distance to enter the process building with the ammonia feed. Assuming prevailing winds are westerly, this would also place the ammonia tank downwind of the process building.

An 18,000 gal ammonia tank is a standard size for all gas fired 50 mmgpy plants, thus it could be used elsewhere.

Final decision will be up to Alex.

Thanks,
Tyler

Ken Cirrencione/Fagen

09/21/2006 04:25 PM

To Tyler Albertson/Eng/Fagen@Fagen, Jeffrey Holcomb/Eng/Fagen@Fagen, John Austgen/Eng/Fagen@Fagen

cc Scott Edwards/Fagen@Fagen, Alan Garrett/Fagen@Fagen

Subject USDA Rejection - Aventine Anhydrous Ammonia Storage Tank

Gentlemen,

This afternoon I received a call from Alex Toro at the Aventine facility in Pekin, IL. Yesterday, the USDA inspected the location of the Anhydrous Ammonia storage tank and rejected it as too close to the property line. Alex Toro had met with the local Pekin officials several months ago and they approved the location of the tank, which is just west of the 190 Proof tank and containment area and 50' south of the north property line. Alex directed FELLC to place the tank at this location. The USDA is requiring that the 18,000 gal. Anhydrous Ammonia storage tank be a minimum of 200' from the property line, which would place it northeast of the cooling tower and east of the 190 Proof tank. The USDA told Alex that they would approve the use of two ea. 1500 gal. nurse tanks at the current location as constructed 50' from the property line.

The footings and piers are poured for the storage tank, the nurse tank unload bulkhead and truck unload upright bulkhead and foundations are in place and everything is backfilled.

Aventine now has very few options. Either we move the tank foundations and bulkheads, revise piping, and add piperack to the location 200' from the property line, or we try to make the nurse tanks work, which would be the cheaper option. The existing piperacks and bulkheads can be used if the nurse tanks are OK. Aventine's other option is to challenge the USDA's ruling, but this is a last resort, according to Alex.

Can the nurse tanks be made to work in this situation? If so, would new pumps and equipment be required, or is PG-12401 sufficient for use? I'm sure a new piping configuration will be required, also. **Please advise ASAP.**

Alex Toro is out of the country until Wednesday visiting his very sick mother, but I can reach him on his cell phone if necessary.

In the meantime, I have placed a hold on the Ammonia Tank delivery, which was scheduled to load tomorrow and deliver Monday, September 25.

I'm sure there will be additional engineering fees incurred by FELLC which would be paid by ARE. If the tank isn't utilized at ARE, can it be put to use at another site? If so, we could credit ARE for the purchase price less a handling fee.

Regards,

Ken Cirrencione

ANHYDROUS AMMONIA FACILITY INSPECTION REPORT AND NOTICE OF CORRECTION ORDER

NO. 004357

ILLINOIS DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL PRODUCTS INSPECTION
SPRINGFIELD, ILLINOIS 62794-9281
217/782-3817 TDD 217/524-6858

Overton Renewable Energy Inc
1300 South Second Street
Pekin, IL 61554
Tazwell Co. (179)
309-347-9222

12-12-06
Date

Site Approved: YES ✓ NO _____
See Correction Notice

Label Changes: _____

_____

_____

_____

_____
Plant Owner or Manager's Signature

_____
Inspector's Signature

NOTICE OF CORRECTION ORDER

Under authority of 505 ILCS 80/1 - 80/23 of the Illinois Fertilizer Law, and as a result of an inspection conducted _____, 20_____ on the ammonia installation located at _____, Illinois, you are hereby ordered to

New Site For Overton Renewable Energy Inc

Firm will have Emergency Safety Shower when plumbing is complete All new materials were used

RE-INSPECTION

_____
Plant Owner or Manager's Signature

_____
Date

_____
Inspector's Signature

Site Approved: YES_____ NO_____

IL406-0024(1-94)

PERMANENT AMMONIA STORAGE TANK

1. Free of leaks. Sat ___ Needs Impr ___ Uns ___
2. Tank supports in good condition (no cracked or crumbled concrete, etc.) Sat ✓ Needs Impr ___ Uns ___
3. Paint in good condition. Sat ___ Needs Impr ___ Uns ___
4. If a site is unattended or not fenced in, are the values equipped with locking devices. Sat ___ Needs Impr ___ Uns ___
5. Ammonia storage tanks properly labeled. Sat ___ Needs Impr ___ Uns ___
6. Is the Anhydrous Ammonia site inside the city limits or outside? inside
7. List how many Anhydrous Ammonia storage tanks are located at this installation and list the capacity of each by gallons.
   TANK #1 18000 TANK #3 _____
   TANK #2 _____ TANK #4 _____
8. Valves free from leaks, properly identified, and in good condition. Sat ___ Needs Impr ___ Uns ___
9. Piping properly supported and guards in place where necessary. Sat ___ Needs Impr ___ Uns ___
10. Pipes free of physical damage and rust and properly painted. Sat ___ Needs Impr ___ Uns ___
11. Liquid and vapor filling hoses do not exceed 30 ft. in length. Sat N/A Needs Impr ___ Uns ___
12. Manager aware of procedure of filling storage tanks. (Ask manager for his filling procedure.) Sat ___ Needs Impr ___ Uns ___
13. What type of system is used for bleeding of transfer hose from transport truck? pulls bleed
14. Wheels properly chocked on the rail tank car and necessary warning signs in place. Sat N/A Needs Impr ___ Uns ___
15. Necessary information and warning signs displayed and in good condition. Sat ___ Needs Impr ___ Uns ___
16. Area free of weeds, trash, and other unsafe conditions. Sat ___ Needs Impr ___ Uns ___
17. Unused equipment stored out of the way. Sat ___ Needs Impr ___ Uns ___
18. Chemical vent type goggles. Sat ___ Needs Impr ___ Uns ___
19. Protective gloves, boots, slickers, (or pants and jacket.) Sat ___ Needs Impr ___ Uns ___
20. Gas masks with ammonia type canisters and refill canisters within date limits. Sat ___ Needs Impr ___ Uns ___
21. Emergency clean water; at least 150 gallons or a shower. Sat ___ Needs Impr ___ Uns ___

TRANSPORT VEHICLES NO. 004357

1. Free of leaks. Sat ___ Needs Impr ___ Uns ___
2. Paint in good condition. Sat ___ Needs Impr ___ Uns ___
3. Valves and fittings free from leaks and in good condition. Sat ___ Needs Impr ___ Uns ___
4. Protective guards in place and in good condition. Sat ___ Needs Impr ___ Uns ___
5. Outlet openings on valves and lines free of dirt and rust with protective caps in place. Sat ___ Needs Impr ___ Uns ___
6. Safety relief valves free of debris with rain caps installed. Sat ___ Needs Impr ___ Uns ___
7. Gauges - pressure, liquid level, operative. Sat ___ Needs Impr ___ Uns ___
8. Excess flow valves installed where required. Sat ___ Needs Impr ___ Uns ___
9. Valves properly labeled liquid and vapor. Sat ___ Needs Impr ___ Uns ___
10. Vapor and liquid hoses of ammonia type and free of damage or deterioration. Sat ___ Needs Impr ___ Uns ___
11. Hoses, including those on nurse tanks, securely clamped to the nipples. Sat ___ Needs Impr ___ Uns ___
12. Hoses suitably racked to prevent kinking and hose on delivery tanks securely fastened to prevent dragging. Sat ___ Needs Impr ___ Uns ___
13. Tanks securely attached. Trailer tongues, hitches, and safety chains in sound condition. Sat ___ Needs Impr ___ Uns ___
14. Nurse tank valves locked or capped if site is unattended or not fenced in. Sat ___ Needs Impr ___ Uns ___
15. Nurse tanks used for other purposes, do they have Ammonia signs removed or covered. Sat ___ Needs Impr ___ Uns ___
16. Nurse tanks properly labeled. Sat ___ Needs Impr ___ Uns ___
17. Five-gallon or larger can filled with clean water for transport vehicles. Sat ___ Needs Impr ___ Uns ___
18. Nurse tanks containing more than 10% of product are stored at the proper distances. Sat ___ Needs Impr ___ Uns ___
19. Number of Nurse Tanks _____

TANK MAINTENANCE

20. Have any tanks been welded on? Yes _____ No _____
21. If the above is yes, list the person or company, and address:

_____

_____

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2980

INSPECTION OF ANHYDROUS AMMONIA INSTALLATION FOR FINAL APPROVAL

	YES	NO	N/A
1. Construction material suitable for anhydrous ammonia use	✓		
2. Lowest point of tank not lest than 36" above ground (if skid-mounted check N/A)	✓		
3. Distance between tanks 5'	✓		
4. Tank has approved foundations	✓		
5. Tank properly painted and labeled — Painting is Complete	✓		
6. Piping properly supported and guards in place — in Process	✓		
7. Valves properly labeled — in Process	✓		
8. System installed to prevent anhydrous ammonia discharge from transports — in process	✓		
9. Safety valves installed in proper locations	✓		
10. All vapor and liquid risers protected against any break resulting from a pull-away	✓		
11. Permanent working platform installed at each nurse tank or applicator loading location			✓
12. Emergency sign displayed	✓		
13. All safety equipment available (protective gloves, goggles, boots, outerwear, gas mask w/canisters or S.C.B.A.)	✓		
14. Easily accessible emergency shower and a plumbed eyewash unit or at least 150 gallons of clean water in a "single" open top container — 150 gallon	✓		
15. Electrical wiring in place	✓		
16. If welding was performed was it done by a coded welder	✓		
17. Final installation complies with information given for tentative approval	✓		
18. Final installation complies with all other rules and regulations relating to anhydrous ammonia	✓		

REMARKS: Firm will have Safety Shower when plumbing is complete

323' 088' 900' N/A

NAME & ADDRESS OF BUSINESS AS LISTED ON TENTATIVE	LOCATION OF SITE
Aventine Renewable Energy Inc. 1300 South Second Street Pekin, IL. 61554	

Bradley A Cantrell — 12/12/06

MANAGER SIGNATURE — DATE OF INSPECTION

John Book — 12/12/06

INSPECTOR SIGNATURE — DATE OF INSPECTION

RECOMMENDED FOR FINAL APPROVAL: YES ☒ NO ☐

IL406-1410(Rev 1-04) Distribution: White – Office; Yellow – Business; Pink - Inspector

ATTACHEMENT 3

ORDERING ANHYDROUS AMMONIA FOR THE DRYMILL STORAGE TANK	REF NO:
	REV NO:
	DATE: 6/27/2011

SCOPE

ORDERING ANHYDROUS AMMONIA FOR THE DRY MILL

PURPOSE

To properly order anhydrous ammonia while maintaining the proper safe capacity limits for the anhydrous ammonia tank

RESPONSIBILITIES

Purchasing Agent is responsible for ordering anhydrous ammonia

MATERIALS AND EQUIPMENT

N/A

SAFETY

N/A

QUALITY

No special concerns

REFERENCES

None

DEFINITIONS

None

AUTHORIZED BY: **QMS Representative**

ORDERING ANHYDROUS AMMONIA FOR THE DRYMILL STORAGE TANK	REF NO:
	REV NO:
	DATE: 6/27/2011

1.0 Purchasing Agent receives daily inventory sheet on chemicals stored in the plant, including the anhydrous ammonia tank.

2.0 Purchasing Agent will order anhydrous ammonia once storage tank level drops to 20%.

- One delivery will bring the level up approximately 35-40%.
- Please be advised that the maximum safe storage level is 85%. DO NOT EXCEED THIS LEVEL ANYTIME.

ATTACHMENT 4

REF NO:	
REV NO:	
DATE:	**6/14/11**

START UP/ SHUT DOWN ANHYDROUS AMMONIA

SCOPE

START UP/SHUT DOWN ANHYDROUS AMMONIA

PURPOSE

To properly start up or shut down anhydrous ammonia supply to slurry tank.

RESPONSIBILITIES

MATERIALS AND EQUIPMENT

SAFETY

It is advised that the operator wear hearing protection, hand protection, a hard hat, and safety glasses.

QUALITY

No special concerns

REFERENCES

None

DEFINITIONS

AUTHORIZED BY: **QMS Representative**

START UP/ SHUT DOWN ANHYDROUS AMMONIA	REF NO:
	REV NO:
	DATE: 6/14/11

1. SHUT DOWN AMMONIA

1.1 Close main valve on ammonia vessel.
1.2 After pressure is relieved close the valve on ammonia piping to slurry tank.
1.3 Inspect all lines to ensure of no leaks.

2. STARTING UP AMMONIA

2.1 Inspect system for any leaks or defects before staring up
2.2 Open valve to slurry tank #1.
2.3 Open main valve at ammonia tank slowly.

ICM
the energy of innovation™
310 North First Street
Colwich, Kansas 67030
Ph: 316.796.0900
Fax: 316.796.0570
www.icminc.com

ATTACHMENT 5

November 10, 2006

Mr. Bradley A. Cantrell
Safety/Loss Control Specialist
Aventine Renewable Energy, Inc.
1300 South Second Street
Pekin, IL 61554

Re: PHA Report Transmittal

Dear Brad,

Please be advised that the PHA which was conducted with you and your staff on November 9, 2006 covered the Highly Hazardous Chemicals, as defined by OSHA 1910.119, in your plant, located in Pekin, IL. These chemicals include anhydrous ammonia and ethanol starting in the Beer Column, where it becomes a flammable liquid.

A copy of the report, PHA Standard Steps, Process Variable Analysis, Risk Matrix, and the original signatures of your staff members attending are attached and are made a part of this transmittal.

This should be inserted into the PHA section of your Process Safety Management book.

By my signature as a Licensed Professional Engineer, I certify that the report reflects the consensus of the group.

Sincerely,

Kenneth E. Ulrich, P.E.

Kenneth E. Ulrich, PE

Aventine Renewable Energy, Inc.

Pekin, IL
Process Hazard Analysis

November 9, 2006

Summary

This initial Process Hazard Analysis was conducted to partially satisfy the requirements of 29 CFR 1910.119, The Process Safety Management of Highly Hazardous Chemicals. The review was conducted by the operating staff at Aventine Renewable Energy, Inc., and by a representative from ICM, Inc., the designer of the facility. The review was conducted in Pekin, IL. The objective of the PHA is to identify, evaluate and manage any hazards before initial operation. Training on PSM, concluding with a test, was conducted to provide background for the PHA.

Process Description

The process converts the starch in corn into ethanol. It is then separated and dehydrated and blended to a fuel grade specification. The chemicals included in this review include anhydrous ammonia and ethanol above 45 proof.

Ammonia is used to control pH in the slurry tank. It also provides nutrient for the yeast. Ammonia is stored in an 18,000 gallon tank. It is fed into the slurry tank through a control valve based on pH control, and can be introduced into the fermenters based on nitrogen requirements of the fermentation.

The ethanol first becomes flammable within the beer column, the first step in the separation process. The vapor from the beer column flows into the rectifier where it is distilled to a 190 proof purity and condensed. It is pumped to 190 proof storage. It is then pumped up to pressure and vaporized in a steam driven heat exchanger to pass through molecular sieves for dehydration, condensed in one body of the evaporators, and pumped to pre-existing 200 proof storage.

Review Methodology

The P&ID's were used to identify each part of the design. The record copy of P & ID's were marked with a yellow hi-lighter as each line and piece of equipment were reviewed. This marked set of P & ID's define the limits of the covered process.

These P & ID's are:
E189-0702-200 R1 Cook Section/Slurry Tanks

E189-0703-100 R1 Fermentation Tanks
E189-0704-100 R0 Distillation Evaporation Section/1st Effect Evaporators
E189-0704-200 R0 Distillation Evaporation Section/2nd Effect Evaporators
E189-0704-400 R1 Distillation Evaporation Section/Beer Column and Side Stripper
E189-0704-500 R2 Distillation Evaporation Section/Rectifier Column
E189-0704-600 R4 Distillation Evaporation Section/Molecular Sieves
E189-0708-400 R1 Product Storage Section/Ethanol Storage
E189-0712-400 R1 Chemical Section/Ammonia System

What if questions based on guide words were posed based on the process variables to create scenarios to be evaluated for risk. For each consequence, existing safeguards were identified, and then an opinion given on severity and frequency. Based on the severity and frequency, the risk was located on a risk matrix. It was agreed if any class I event were identified, it would be changed.

Hazards Identified

Ammonia System

The system was considered to be well protected with the equipment specified for the installation, such as the excess flow check valves and relief valves. The major concern is the consequence of the failure of the specified equipment. The recommendation is to schedule periodic preventive maintenance on all of the specified equipment to keep its operation intact.
No class I, II, or III risks were identified.

It was recommended that the following interlocks be confirmed before start up:

Process Variable	Condition	Equipment	Action
Level	Low	slurry tank	close ammonia pH control valve
Level	Low	Fermenter	close ammonia pH control valve

A walk down of the system revealed that for what had been installed to date, the tank fill isolation valves are in backwards, and the fill line valve at the hose end is in backwards.

Ethanol System

The system was considered to be well protected, as defined on the P & ID's.

It was recommended that the following interlocks be confirmed before start up:

Process Variable	Condition	Equipment	Action
level	high-high	Beer Column	trip beer feed pump, steam to 1st effect
temperature	low	Beer Column	Route whole stillage to beer well
pressure	high-high	to the Beer Column	trip steam to 1st effect
level	high-high	Rectifier Column	trip beer feed pump, steam to 1st effect
pressure	high-high	Rectifier Column	trip steam to 1st effect
level	high-high	Side Stripper	trip beer feed pump, steam to 1st effect
pressure	high-high	Side Stripper	trip steam to 1st effect
level	high-high	Reflux tank	trip beer feed pump, steam to 1st effect
level	high-high	Regen tank	trip mole sieve feed pump
level	high-high	200p flash vessel	trip mole sieve feed pump
motor run	trip	centrate vent blower	Close regen tank vent valve

No class I, II, or III risks were identified.